24.b		กับ	kap	kàb
24.c		รูป	rūp	rûub
24.d		ไก่	kai	kàj
25.	กระดิ่งใส่คอวัว		krading sai khɔ̄ wua	...
25.a		กระดิ่ง	krading	kradìŋ
25.b		ใส่	sai	sàj
25.c		วัว	wua	wua
26.	เครื่องหญ้านาง (?)		khrŭa yā-nāng	khrya jâanaaŋ®

PROPER NAMES

A	คำศรี อดทน	khamsĭ ot-thon	/khamsǐi ʔòdthon
B	(หมู่บ้าน) หัวดง	(mūbān) huadong	/(mùubâan) hŭadoŋ
C	สเถียน วินเนาว์	sathian winnao	/sathǐan winnaw (เสถียร –)
D	สมาน พละกล้า	samān phala-klā	/samǎan phalákláa (สมาน –)
E	ทอง สีสงคราม	thɔ̄ng sĭsongkhrām	/thɔɔŋ sǐisǒŋkhraam
F	(พ่อ) อ่อนตา ไกรมณี	(phɔ̄) ɔ̄ntā kraimanĭ	/(phɔ̂ɔ) ʔòɔntaa krajmanii
G	(แม่ของ ?)มี ภาพโสภา	(māē khɔ̄ng) mī phāpsōphā	/(mêɛ khɔ̌ɔŋ) mii phâabsǒophaa
H	พวรรัตน์ ต้นพาณิชย์	bawɔ̄nrat tonphānit	/bawɔɔnrát tônphaaníd
I	จันทร์แจ่ม บุนนาค	čhančhaem bunnāk	/cancèm bunnâag

SOURCE FOR NORTH-EASTERN THAI

พจนานุกรม ภาคอีสาน – ภาคกลาง ฉบับปณิธาน สมเด็จพระมหาวีรวงศ์ (ดิสสมหาเถระ)
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photčhanānukrom phāk Īsān - phāk klāng ...mahāwīrawong...

phódcanaanúkrom phâag iisǎan — phâag klaaŋ ... mahǎawiirawoŋ...

North-eastern Thai - Central Thai Dictionary, the Rev. Mahaviravongs' Memorial Edition, Bangkok 1972

Instruments in an Orchestra from Pyū (Upper Burma) in 802

LAURENCE PICKEN

(Jesus College, Cambridge)

The extended description (from *Xin Tangshu* 新唐書) of instruments in use by the troupe of 35 musicians and dancers presented to the Chinese throne in 802 by the brother, Sunanda, of the King of Pyū, and the latter's Commander-in-chief, was translated with critical comments by D. C. Twitchett and A. H. Christie in 1959.[1] Their paper also included a table compiled by me of pitches and tunings associated with the various instruments. A remarkable feature of the account is: that the scalings of melodic instruments are stated, in three instances, in terms of Chinese standard pitches, and can therefore be reconstructed with some certainty; furthermore, in the case of instruments capable of yielding one or two notes only, the pitches are specified; and the tunings of three stick-zithers are also recorded.

Several errors crept into the table as published, and these, and the passage of time that brings increased knowledge, justify a revision and reconsideration, both of the table and of some of the tentative suggestions made twenty years ago. In revising the Table (see p. 255), all speculative amplifications of the pitch-data as given in Xin Tangshu have been omitted. Where appropriate, similar comments will be re-introduced in subsequent discussion for which, in the study by Twitchett and Christie, there was no occasion.

From the standpoint of a Western observer, the most striking feature of the Xin Tangshu account – apart from the enlightened curiosity that led, in the first years of the ninth century, to the description of the entire instrumentarium of a 'foreign' orchestra of 35 instruments that included 19 different types of instrument (22 types are claimed in the text) – is the specification of pitches and scalings. Moreover, these pitches and scalings are inter-related in such a manner that the orchestra appears to have played in a single, heptatonic octave-species; and furthermore, in view of the limited number of potential drones available on single- or two-note free-reed instruments in bass-register, it is probable that only a very limited number of modal inversions were practised. If, however, the bass-reeds were used as

[1] Denis C. Twitchett and Anthony H. Christie: 'A Medieval Burmese orchestra', in *Asia Major*, vii, 176–195, 1959. Sunanda is elsewhere stated to be the king's *son*, as noted by Twitchett and Christie.

drones on notes other than fundamental, and fifth above or fourth below, other modal inversions may have been in use; but the note-series of instruments remained constant as Mixolydian on either $e^{\flat}$ and $a^{\flat}$, and these in fact overlap.[2]

It is proposed to re-examine that portion of the Xin Tangshu account which is of greatest musical interest, revising minimally the translation of Twitchett and Christie and adding my comments.

'Yong Qiang also sent his younger brother, Shunanto [=Sunanda], Lord Governor of Xiliyi City, to present his country's music.[3,4]

When they arrived at Chengdu, Wei Gao also notated their tunes one by one.

Since the character of their dances and musical instruments differed from the usual, he had pictures made, so as to present [them to the throne].

Of musicians' instruments there were two and twenty.

Their timbres were eight [in number]: metal, shell, silk [= stringed], bamboo, gourd, skin [= leather], tooth [= tusk = ivory], and horn.

Of metal, two [types]; of shell [conch], one; of silk, seven; of bamboo, two; of gourd, two; of skin, two; of tooth, one; of horn, two [= 19 types – not 22 as stated].

Of *lingba* (bell-cymbals), four, made[5] as those in the Kuchean Division,[6] circumference three inches,[7] threaded with leather thongs; striking corresponded to the metre.

Of *tieban* (iron clappers), two; three and five tenths [= a half] inches long, and two and a half inches wide. The surface was flat, and behind was a hand-grip lashed on with leather thongs.

As with the bell-cymbals, both were decorated with cords in profusion

2 Writing $e^{\flat}$ for $d\#$ and $a^{\flat}$ for $g\#$ because of the more familiar look of the flat keys. The notes in common are: $e^{\flat}\ f\ a^{\flat}\ b^{\flat}\ c\ d^{\flat}$.

3 Xin Tangshu, 222 *xia* (Bona Edition 百衲本, Shanghai 1930–37), pp. 9a, line 6 to 11a, line 2; see Plates a-f. The first two sentences of the translation by Twitchett and Christie are taken from p. 7a, lines 1–3. The reign-period 貞元 is Zhenyuan (not Zheng-yuan) (Plate a).

4 Xiliyi is tentatively identified with Bhamo or Tagaung; see Twitchett and Christie, op. cit., f.n. 8, p. 184.

5 Reading 製 for 制.

6 That is, the tributary musicians from Kuchā who performed at the Chinese court.

7 It would seem improbable that the *circumference* was only three inches; for if so the individual bell-cymbals would be no more than about an inch in diameter. The usual term for 'diameter' would be *yuanjing* 圓徑; but *jingyuan* 徑圓 is circumference. The more usual term for 'circumference', however, is *zhouyuan* 周圓 – not, as in this text, *yuanzhou*. It is tentatively suggested that the text originally had *yuanjing*, recording a *diameter* of three inches; but that, because this term was felt to be ambiguous, *zhou* 周 was substituted for the second element, unfortunately resolving that ambiguity precisely in the wrong way. If 'threaded with leather thongs' means that the bell-cymbals were joined in pairs, this would correspond to the linking – indeed, gemination – of bell-cymbals in Burma, China, South Asia, etc., today. 'Four' presumably implies two pairs.

and with ornamental knots [= 'Turks Heads'?], made from threads of coloured cotton [?].

Of conches, four; the large ones were capable of holding a pint.[8] They were decorated with a profusion of cords.

Of phoenix[9]-headed harps, two; one of them was two feet long [= resonator-length], the belly-width, seven inches. The phoenix-head and neck [together] were two feet five inches long. The upper surface was decorated with snakeskin. Of strings, there were four and ten [= fourteen]. The neck had [rotating] pegs.[10] The phoenix-head faced outward [away from the performer]. Of one of them [= the other], the neck[11] had [especially] long [rotating] pegs.

Of crocodile-headed zithers, two. The shape also of one of them was crocodile-like. It was four feet long and had four feet. The belly was hollow, and the back was decorated with crocodile-skin. The upper surface and Immortal's[12] Shoulders were like those of the qin [= 7-stringed zither]. The [upper] width was seven inches; the [lower] belly-breadth was eight inches. The tail was more than a foot long, curling upwards [to form a scroll], hollow in the middle. A cross-bar was positioned to stretch the nine strings. To left and right there were 18 moveable bridges.[13] The surface of [the other] one was ornamented with coloured flowers and differed in being covered with snakeskin.

There was a single dragon-headed lute. Being made like [those of] Kuchā, the neck was more than two feet six inches long. The belly was six inches wide. Two confronting dragons formed the head. There were [rotating] pegs, and frets, three of each. The strings matched this number. Two of the [rotating]

8 The harmonic most readily obtainable from a conch of 1500ml capacity was found to be D above middle C. The Pyū conches were considerably smaller and presumably of higher pitch.

9 *feng* 鳳 is commonly translated as 'phoenix'; but the creature has nothing to do with the single-egg-laying, thousand-year living, fire-incubating, mythical bird of the West. The feng's epiphany is highly auspicious, and its iconographic representation is plainly based on the more resplendent members of the Phasanidae, such as Lady Amherst's Pheasant. At times it appears to overlap with the giant *garuda* of Hindu mythology, or with Sindbad's *roc*. A phoenix-headed harp is depicted, in the *Yueshu* 樂書 (1101) of Chen Yang 陳暘, as an arched harp without fore-pillar (see *New Oxford History of Music, i*, Plate V(a), London, 1957).

10 The presence of *che* 車 (a two-wheeled chariot) as determinative in the lexigraph 軫 indicates a rotatable peg, rather than a fixed peg such as those that serve to prevent strings slipping down the arch of the harp. Such fixed pegs ('knobs' in Sachs's usage) occurred on the Assyrian angular harp, for example.

11 Reading 項 for 頂.

12 Reading 仙 for 仰. The term 'Immortal's Shoulder': *xianren jian* 仙人肩 is applied to the incurved edges, to the left of the fixed bridge, on the *qin* 琴.

13 18 = 2 x 9; there were, therefore, two moveable bridges per string – as on some *zheng* 箏. As argued by Twitchett and Christie, *zhu* 柱 is clearly 'moveable fret'.

pegs were on the back of the neck, one on the front.[14] Its bridge was shaped like a lion.

There was a single cloud-headed lute [that is, with a scroll ending in a formalised cloud-design]. The shape was like that of the preceding. The surface was decorated with snake-skin. The four faces had ivory studs.[15] The head [= scroll] was in the form of a cloud.[16] The tops of the [rotating] pegs bore flowers in the shape of the lexigraph *pin* . Three strings. The belly and bridge[17] were both decorated with snake-skin. The carved plectrum, being in the shape of a dancing Kunlun,[18] was painted in various colours.

There were, of large gourd-zithers, two [– that is, stick-zithers with gourd-resonators]. The belly (= accessory resonator) was from a half gourd. A multitude of colours adorned it. Above was added a copper bowl.[19] From bamboo was made the zither-part. Decoration, in the likeness of a venomous serpent, traversed its upper surface. It was more than three feet in length. The head, bent like hands folded on the breast, was two inches long. With lengths of thread [the zither-part] was tied to the resonator[s], threading through the bowl and reaching to the stem-end of the gourd. The capacity of the resonator[s] was two pints. The larger [= thicker?] string responded to *taicou* 太簇 (= $a^{\flat}$); the next, to *guxian* 姑洗 (= $b^{\flat}$).

There was a one-string gourd-zither. It was made from mottled bamboo without added decoration. A serpent's head of carved wood stretched the string. There being no [rotating] peg, the string was tied round the serpent's neck. There were four frets, as on the Kuchean lute. The string corresponded to taicou ($a^{\flat}$).

There were, of small gourd-zithers, two. Their shape was like that of the large gourd-zithers; length two feet. The thicker string corresponded to *nanlu* 南呂 (= $e^{\flat}$); the next, to *yingzhong* 應鐘 (*f*).

There were, of transverse flutes, two. One was more than a foot long, and all instruments were accustomed to take their consonant pitch from it. The nodes of bamboo [comprising the instrument] were without spurs [= leaf-

14 頸 ,項 , the front ('throat') and back of the neck, respectively; that is, both frontal- and rear-inserted pegs.

15 Ivory studs could well be used to nail the snake-skin table to the body of the resonator. It is possible that *si mian* 四面 is a corruption of *liang mian* 兩面 'both faces', since a lute-resonator with four 'faces' (= tables) would be rather unusual. Both *sanxian* and *shamisen* have tables front and back of the resonator.

16 Some Chinese lutes (*piba*) are still made today with the scroll ending in a formalised 'cloud'-shape.

17 Accepting the emendation by Twitchett and Christie of *fu shou jie* 覆手掲 to *fu fu-shou jie* 腹覆手掲 , where a copyist may have supposed the second *fu* to be redundant.

18 Twitchett and Christie note the presence of a Kunlun Country in Lower Burma.

19 As noted by Twitchett and Christie, this description is far from clear. It seems certain that the copper bowl was attached *via* a gourd-bowl or gourd-stem; but there may have been a second gourd-resonator also. 'Stick-zither' is a misnomer in the case of all zithers where the string-bearer is a hollow bamboo or other giant grass, and therefore acts as a resonator. Indeed, the stick-zithers *are* in origin tube-zithers with accessory resonators.

buds]. [At one end] a solid head of wax having been formed, thereon was mounted a lion's head made from ivory. Of holes, there were six that [cor-]responded to *Huangzhong-shang* 黃鍾商 [Mixolydian, with $a^{\flat}$ as final, in the basic series, starting on $g^{\flat}$ = huangzhong, for example] furnishing the five notes [$a^{\flat}$ $b^{\flat}$ $d^{\flat}$ $e^{\flat}$ $g^{\flat}$] and the seven sounds [$a^{\flat}$ $b^{\flat}$ c $d^{\flat}$ $e^{\flat}$ f $g^{\flat}$].

There was also a pipe with only an ivory head[20] added. Its pitch-pipe degrees were the same as in Xun Xu's 'Flute Score'[21]. It was also consonant with the [Huang-]zhong sound in the *Qingshang* 清商 Division[22] (= $a^{\flat}$?).

There were, of two-headed flutes, two, of length: two feet eight inches. Through the middle ran a joint [= nodal septum], to right and left of the septum there opened holes for the breath to rush through. The two ends, both being separate hollow bodies, acted as flutes. It was established that the left-hand end corresponded to taicou ($a^{\flat}$). Of the three holes [towards] the end of this pipe, the first was guxian ($b^{\flat}$); the second, *ruibin* 蕤賓 (c): the third, *yice* 夷則 ($d^{\natural}$). The right-hand end corresponded to *linzhong* 林鍾 ($d^{\flat}$). Of the three holes [towards this] end of the pipe, the first was nanlu ($e^{\flat}$); the second, *yingzhong* 應鍾 (f); the third, *dalu* 大呂 ($g^{\natural}$). The single supporting fingerhole beneath [= thumbhole] corresponded to the upper octave of taicou. The two ends, with the seven holes, together provided for the

20 Presumably the 'only' of the text means that the head was attached directly rather than through the intermediary of wax. Twitchett and Christie suggest that *xiang-shou* 象首 might alternatively be read here as 'elephant head'; but this would leave the force of *wei* 唯 (= only) unexplained. Even so, elsewhere *ya* 牙 (= tooth = ivory), rather than xiang, is used for 'ivory' in this text. This seems to be a second type of flute; but *guanzi* is used today for a cylindrical pipe with a large double reed.

21 See f.n. 43, p. 190, in the paper by Twitchett and Christie, on Xun Xu and his lost work.

22 The *Qingshang Bu* 清商部 is yet another of the Divisions into which the Palace music and musicians were divided. The meaning of *qingshang* is discussed in *Studia Memoriae Belae Bartók Sacra*, Budapest 1956, p. 170.

two scales: *huangzhong* and *linzhong* [gong].[23]

There were, of large gourd mouth-organs, two; both with sixteen pipes;[24] to right and left, each eight, in the shape of phoenix wings. The longest pipe was four feet, eight and a half inches, in length; the remaining pipes, unequal in length, followed in order. They were made like to the shape of [Chinese] *sheng* 笙 pipes, which also is of the class of phoenix-wings. Of bamboo were

23 It is now clear to me that I failed to make plain the significance of this passage in the table published in 1959. My diagram on p. 194 of the paper by Twitchett and Christie seems to have been intended only to show two Mixolydian, heptatonic scales, a fifth apart, and the extent of overlap between them. In fact, as shown by the *f*♯ (= $g^{\flat}$) in square brackets, there is no flattened seventh available in the octave species starting on *g*♯ (= $a^{\flat}$). The representation of two Mixolydian octave-species might suggest that I was guilty of a similar error to that of Courant, noted by Twitchett and Christie (their f.n. 45), who supposed there were seven fingerholes on either side of the central blow-hole of this double-ended flute. But the conclusion of their f.n. 47 shows that I did not mislead them. Re-reading the text, there can be no doubt that the fundamental, huangzhong ($g^{\flat}$), was available, and it is to be supposed that it was obtained by closing all seven holes – that is six fingerholes and one thumbhole. (On this type of flute, with central blowhole, the ends are – of course – closed.) If the scale (ratio of diameter to length) were small enough to permit overblowing to the octave, $g^{\flat}$ would then be available for the characteristic *qingshang*-cadence $g^{\flat}\ a^{\flat}$. Putting together all available notes, the complete series would be: $g^{\flat}\ a^{\flat}\ b^{\flat}\ c\ d^{\natural}\ d^{\flat}\ e^{\flat}\ f\ g^{\flat}\ g^{\natural}\ a^{\flat}$. Then the left hand is properly said to yield Huangzhong-gong – over the first diminished fifth, from $g^{\flat}$ to *c*; and the Huangzhong-gong octave-species could be completed by notes from the righthand end: $d^{\flat}\ e^{\flat}\ f$, and the overblown octave of the fundamental: $g^{\flat}$. Again Linzhong-gong is available (granted the facility of overblowing): $d^{\flat}\ e^{\flat}\ f\ g^{\natural}\ a^{\flat}\ b^{\flat}\ c\ d^{\flat}$. Furthermore, Huangzhong-shang is available – that is, the Mixolydian octave-species starting from the second (shang) degree of the basic series starting on huangzhong, namely; $a^{\flat}\ b^{\flat}\ c\ d^{\flat}\ e^{\flat}\ f\ g^{\flat}\ a^{\flat}$ ($g^{\flat}$, $a^{\flat}$ = overblown). However, the absence of *zhonglu* 仲呂 ($b^{\natural}$) makes the Linzhong-shang series defective, in that it lacks a flattened seventh: $d^{\flat}\ e^{\flat}\ f\ g^{\flat}\ a^{\flat}\ b^{\flat}\ (b\ )\ d^{\flat}$. But the missing note might be faked, of course, by increasing the wind pressure on $b^{\flat}$. The advantage of the arrangement with a central blow-hole would seem to be that, with suitable spacing of six fingerholes and a thumbhole, it is possible to obtain nine, rather than seven notes, without overblowing.

The scaling of these flutes does not equate with that of 'central-embouchure flutes' discussed by Anthony Baines: *Woodwind instruments and their history* (London) 1957, pp. 185 et seq. (in particular, p. 186); but the example discussed by Baines differs from these in that it has no thumbhole. In Baines's flute, with the fundamental $g^{\flat}$ (all holes closed) the note series (without overblowing) is: $g^{\flat}\ a^{\flat}\ b^{\flat}\ c^{\flat}\ d^{\flat}\ e^{\flat}\ f$ (that is, an Ionian octave-species); the Pyū-flute series is: $g^{\flat}\ a^{\flat}\ b^{\flat}\ c\ d\ \ d^{\flat}\ e^{\flat}\ f\ g^{\natural}$ (that is, a mixed series, not corresponding to a single diatonic octave-species). The statement in the Chinese text that 'the right hand end corresponded to *linzhong*' means, presumably that the right-hand end yielded a tritone starting on Linzhong ($d^{\flat}$) namely: $d^{\flat}\ e^{\flat}\ f\ g$, and this note ($d^{\flat}$) was presumably obtained by closing the thumbhole, since with the thumbhole open, and only the three holes to the right of the embouchure closed, the note yielded was $d^{\natural}$. The thumbhole must have remained closed.

This discussion assumes, of course, that the Xin Tang Shu account is accurate.

24 This number of pipes is still to be found on the large mouth-organs (*khāēn*) of North-East Thailand and Laos (see this volume, p. 134).

made the reeds.[25] [The pipes] pierced right through the gourd, passing through the bottom.[26]

The eight timbres of high antiquity have all been replaced by wood and lacquer. If bronze is used to make reeds,[27] one does not have the gourd-sound. Only Piao State attains to the ancient [method of] construction.

There were also, of small gourd mouth-organs, two, constructed like the large mouth-organs. Their pitches corresponded to linzhong-shang.[28]

There were, of three-headed drums, two. Their shape was like to a wine-crock, two feet high. The heads [= tops] were broad, and below they were

25 This is an important structural detail. By the time of the Tang Dynasty, Chinese mouth-organs used metal (bronze) reeds. Bamboo-reeds survive in certain rural Dayak instruments (see f.n. 6, op. cit. pp. 165 and Plate VI (g)) and, as Fräulein Gretel Schwörer informs me, in the mouth-organs of the LA^{v} HU of Northern Thailand. Among the latter, the bamboo is a special kind, growing only above 2000m. On Dayak and LA^{v} HU instruments, the end of the tongue of the free-reed is square-cut, and the sides of the tongue are parallel; but whereas the Dayaks carve the free-end of the tongue so that a block of wood remains, the LA^{v} HU (again Fräulein Schwörer) tune their bamboo-reeds with a distal blob of beeswax, at times up to 10mm in height. The Meo of Northern Thailand (Miao of South-West China) cut reeds of bronze, and tune the distal-end of parallel-sided, oblique-cut (not square-ended) tongues with blobs of wax.

26 This feature, typical of mouth-organs from North and North-East Thailand, and from Laos, as well as of certain Dayak instruments, is of great significance. It seems possible that the practice of passing the pipes right through the resonator first arose as a means of fixing the pipe-array more firmly, rather than relying on securing them in a mass of beeswax at their entry into the cavity of the gourd. The pipes pass through the gourd and emerge below in certain Dayak instruments, as well as in the relatively simple mouth-organ from the Shan States, illustrated by Twitchett and Christie. In some of these instruments, with pipes emerging from the bottom of the resonator, the pipes are closed below by a septum, and the reed, whether of bamboo or of metal, is inserted at, or close to, the lower closed end of the pipe, as in mouth-organs from China and Japan. The effect on tonal quality of having a pipe vented below the point of insertion of the reed, as on mouth-organs from N. E. Thailand, may have been discovered by accident when attempting to make use of pipes that were not, conveniently, closed below by a suitably placed nodal septum, situated in the length required to allow the pipe to pass completely through the resonator.

27 The lexigraph *jin* 金 serves for metals in general as well as, specifically, for gold and bronze. Here there can be no doubt that 'bronze' is meant, since only an alloy of copper and tin, with a trace of zinc, cold rolled, and subsequently cold worked (see p. 125ff) suffices. The necessary elastic properties of the reed-lamina are only obtainable from such an alloy; they are not obtainable from metallic gold, copper, or indeed, silver.

28 This is important information, implying a set of sixteen fixed pitches corresponding to the Mixolydian octave-species starting on *e*♭. The difference between 'large' and 'small' mouth-organs is likely to have resided, not in the number of pipes, but in the length of the longest pipe. In North-East Thailand, for example, khaen are made today in three sizes: *ca* 200, 100 and 50cm, forming a consort of overlapping octaves: *d–d″*, *d′–d‴*, *d″–d⁗*. The traditional Thai instruments yield two heptatonic octaves of the Aeolian species – the Chinese *jiao* 角 mode; but the use of a six-hole flute in the Pyū orchestra, corresponding to Huangzhong-shang, suggests that the Pyū mouth-organs also may have yielded heptatonic octave-species, namely, two octaves of Mixolydian starting on *e*♭. Given a length of four feet eight and a half inches for the longest pipe of the *large* mouth-organs, their lowest note was probably *e ′*.

pointed; above they were seven inches wide; at the bottom, four inches. The width of the belly [of the crock] did not exceed that of the head. Covered with snake-skin, the three were stitched together, making one. Lengths of blue [thread] lashed them together. Beneath, they stood on the ground, and therefore they were not covered [below with snake-skin]. The four surfaces were adorned with paintings of musicians of the Piao State, holding mouth-organs and drums.[29]

There were, of small drums, four, constructed like [our] waisted drum, five inches long, with heads three and a half inches broad, covered with snake-skin, ornamented with ivory nails.[30] Without handles, they were shaken to give the musical metre. The presenters all held them.

There was an elephant-tusk mouth-organ. The tusks pierced right through the gourd, passing through the bottom. It was lacquered. On top, two

29 What the *four* surfaces were is unclear. It is of interest that the ensemble represented on the drums (drums and mouth-organs) is even more restricted than that listed in the *Comparative Table of Pyū Orchestra and the Instruments of Pagan*, Twitchett and Christie, p. 195, showing the instruments mentioned in a Mon inscription of the eleventh century. These include a flute as well as drums and free-reed mouth-organs. Twitchett and Christie were inclined to reject the possibility that Bo Juyi 白 居 易 (see p. 268) was writing factually when he recorded, in his poem on the subject of the performance of the Pyū musicians, that bronze drums were sounded at the beginning of the performance, on the grounds that there is no evidence of the existence of the Dong-son culture (associated with these drums) in Upper Burma. Nevertheless, bronze drums – that is, single-headed drums of cast bronze with a membrane consisting of a thin sheet of bronze, fused to the body, have survived until recent times among the inhabitants of the Shan States, and still survive among the Karen.

30 The drums were presumably nail-braced with ivory pins. Four lexigraphs were overlooked by Twitchett and Christie: 牙釘 彩飾 'ornamented with ivory nails'. It is worth noting that the *primary* stretching of skins to form the head of apparently nail-braced drums in East Asia is achieved by cord-bracing, through holes in the margin of the skin. After the skin has dried out under the appropriate tension, nails are inserted to retain it in this configuration, and only then is the margin, along with the cords, trimmed away. This has been determined by examination of drums under construction in an instrument shop and factory in Hong Kong in 1972.

The fact that these drums were shaken implies that they were pellet-drums, probably resembling the toy waisted-drums sold in Delhi, for example, in which the bracing cords terminate (a) in a knotted girdle that imposes tension on the W-type bracing, and (b) in two terminal knots that act as beaters when the drum is shaken. The long-axis of the drum is rotated about the axis of the fore-arm, alternately clockwise and anti-clockwise, through *ca* 90° in either sense.

elephant-tusks were implanted instead of pipes. The pair of free-reeds both corresponded to guxian ($B^{\flat}$).[31]

There was a three-horn mouth-organ. Here also [the horns] pierced right through the gourd, passing through the bottom. It was lacquered. On top, three ox-horns were planted. Of one, the free-reed corresponded to guxian ($b^{\flat}$), the remaining [free-reeds] corresponded to nanlu ($e^{\flat}$).[32] The pointed ends of the horns, being downwards, pierced right through the gourd, passing through the bottom. The handle and mouthpiece were both straight.

There was a two-horn mouth-organ. Here also [the horns] pierced right through the gourd, passing through the bottom. On top, two ox-horns were planted. The free-reeds corresponded to guxian ($b^{\flat}$). The gourd was decorated in colours.' (Plates a-d, pp. 256-9).

From the wealth of detailed information relating to pitches and scalings (Table, p. 254), stated in absolute terms in this account of an eighth-century orchestra, much can be inferred regarding the essential features of the music performed, for – as Belyaiev perceived[33] – the scaling of an instrument is, in a sense, a précis, an epitome, of its music.

A feature of the Pyū orchestra without parallel elsewhere is the high proportion of wind instruments capable of yielding one or two notes only and, in the case of the elephant-tusk and ox-horn free-reed mouth-organs, probably in tenor register. The presence of these instruments suggests that conches and mouth-organs were used to yield drones, in tenor (and possibly bass) register. (The conches might yield two harmonics, but rarely more.) A

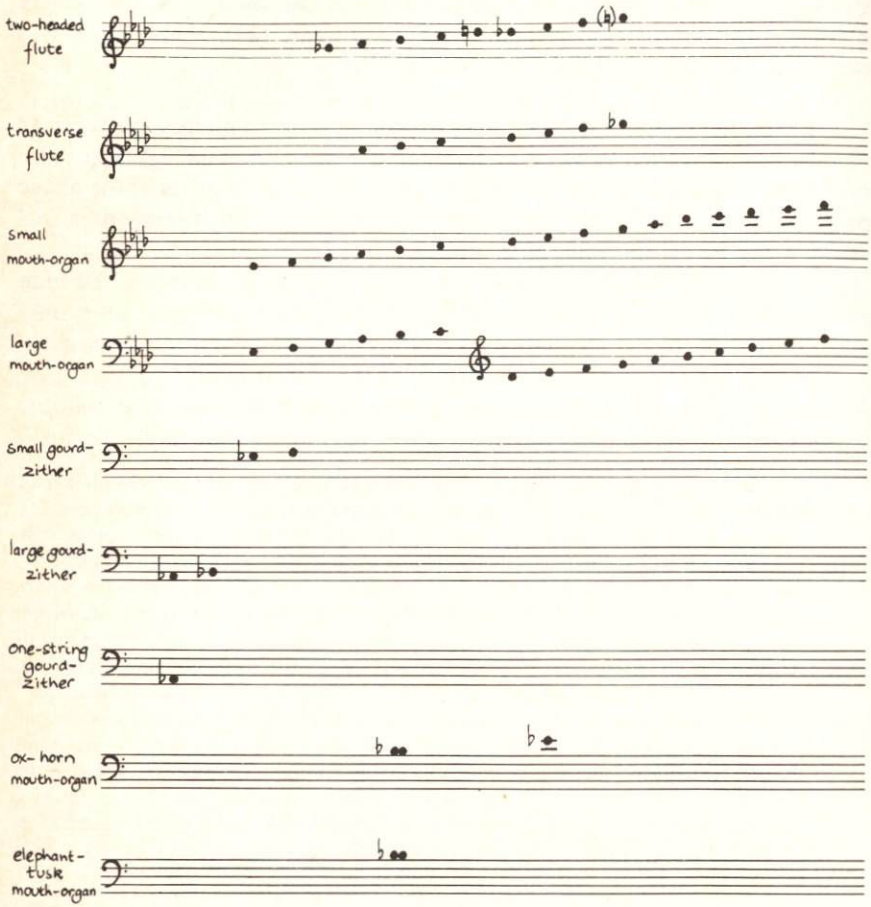
31 Recalling the impressive size of some elephants' tusks, one is inclined to think at first of $b^{\flat}$ pitched in the $B^{\flat}$ or $B^{\flat\prime}$ range. When I consulted Dr Friday (Curator of Vertebrates, The Museum, Department of Zoology, U. of C.), he reminded me that while the pulp cavity increases in length during the early period of growth of the tusk, its length subsequently diminishes. A tusk 5 feet in length will have a pulp-cavity of 2.5 feet; but in the mature tusk, the length will have diminished. Examining (with Mr Michael Good) side-blown ivory trumpets from Africa in The Musical Instrument Collection of the Museum of Archaeology and Ethnology, U. of C., the maximum length from tip-fingerhole to open rim was 31 ins in the case of a trumpet from Zaire which yielded a slightly flattend $a^{\flat}$. While the properties of the resonator do not determine the pitch of the note produced by pipe and reed (see p. 142), the natural fundamental frequency of the reed must be nearer the natural frequency of the pipe than is its first harmonic, if the pipe is to sound at the fundamental frequency of the reed. It is probable, therefore, since the length of a resonator made from the hollow portion of an elephant's tusk cannot much exceed 2.5 feet (760mm), that the pitch of the elephant-tusk mouth-organ lay in the octave below middle C.

32 Measurements of length and pitch of African trumpets made from ox-horns gave a pitch-value in the octave below middle C (again *ca* $a^{\flat}$) for a horn just over two feet in length; and of more than an octave above this ($b^{\flat\prime}$) for a horn of about one third the length (*ca* 200mm). With large ox-horns, therefore, the notes of the three- and two-horn mouth-organs may have been situated in the same octave as those of the elephant-tusk mouth-organs. Better overall sonority might be obtained, however, if the octave-distribution were $b^{\flat}$ $b^{\flat}$ (two elephant tusks); $e^{\flat\prime}$ $e^{\flat\prime}$ $b^{\flat\prime}$ (three ox-horns); $b^{\flat\prime}$ $b^{\flat\prime}$ (two ox-horns).

33 V. M. Belyaiev: 'The formation of folk modal systems', in *Journal of the International Folk Music Council*, volume V, p. 4 (1963): "Musical instruments with fixed scales preserve historical stages in the development of melody...."

TABLE

Tunings and scalings of instruments in the orchestra of Pyū (802)



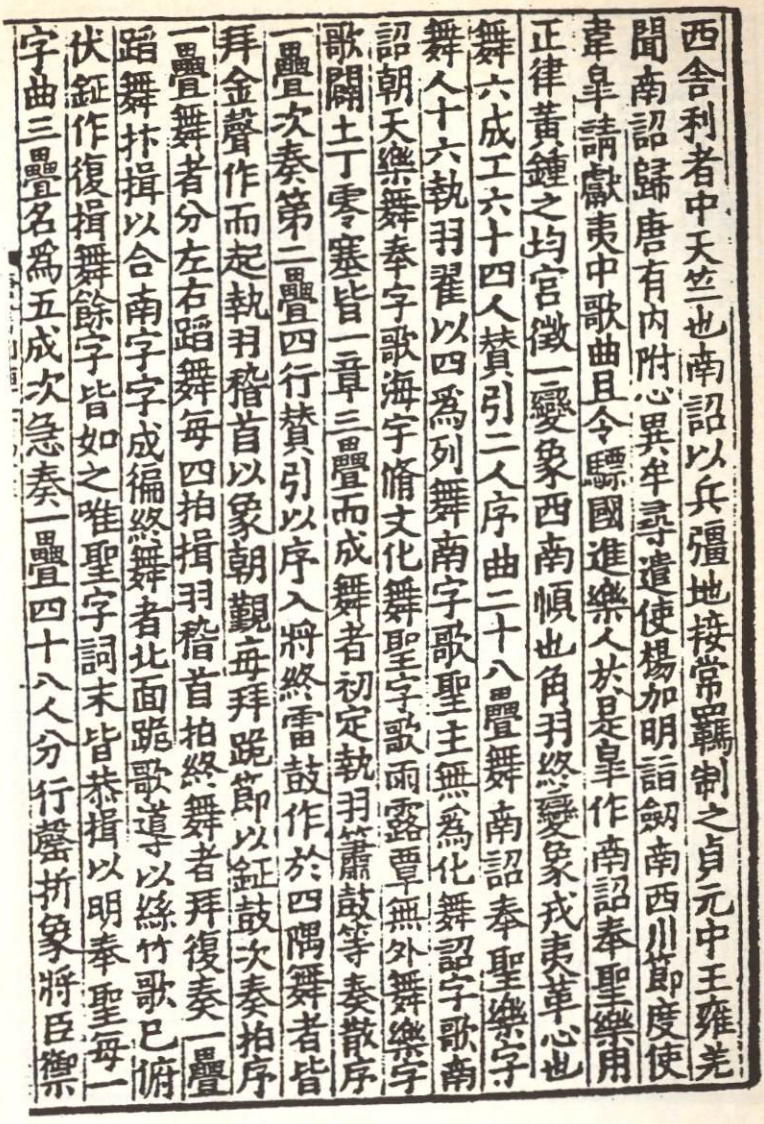


Plate a. The original text of the opening paragraph of the translation by Twitchett and Christie (*op. cit.*, p. 183): '...During the *Zhenyuan* reign period (785-806), the King [of Piao] Yong Qiang...' begins at the sixth lexigraph from the bottom of the first column on the right.

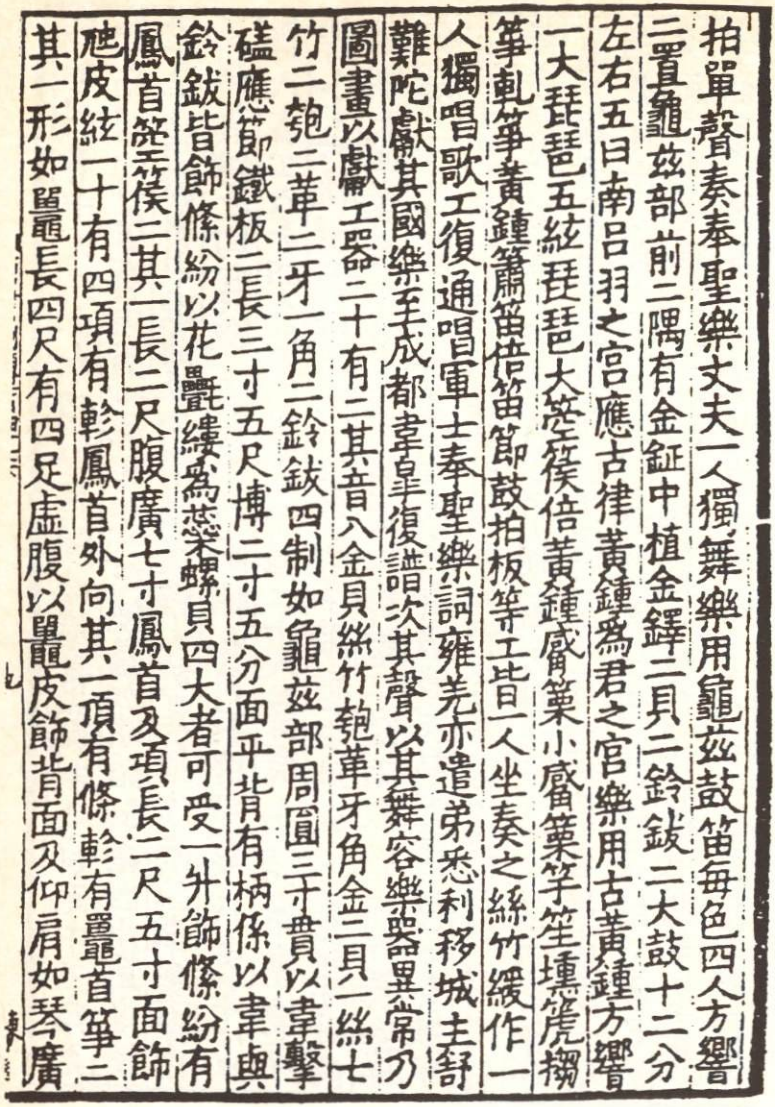


Plate b. 'Yong Qiang also sent his younger brother ...' begins in the sixth column from the right-hand margin, eleven lexigraphs from the bottom.

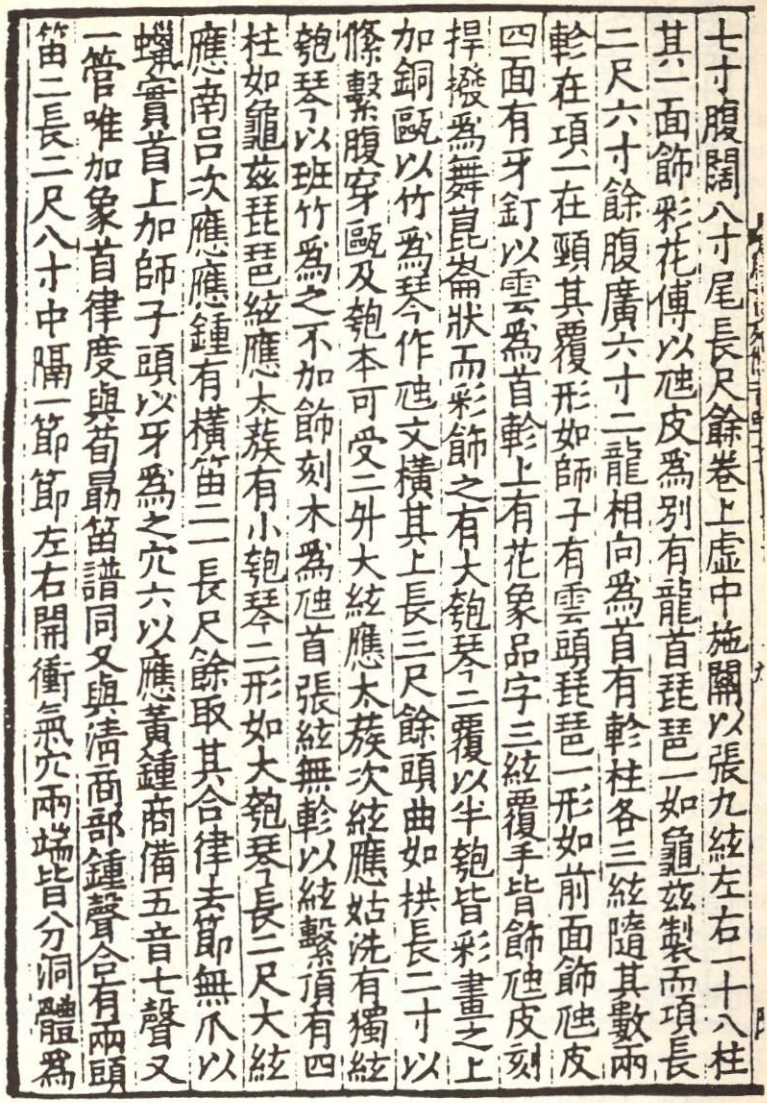

七寸腹闊八寸尾長尺餘卷上虛中施關以張九絃左右一十八柱其一面飾彩花傳以虵皮爲別有龍首琵琶一如龜茲製而項長二尺六寸餘腹廣六寸二龍相向爲首有軫柱各三絃隨其數兩軫在項一在頸其覆形如師子有雲頭琵琶一形如前面飾虵皮四面有牙釘以雲爲首軫上有花象品字三絃覆手皆飾虵皮刻捍撥爲舞鳳銜狀而彩飾之有大匏琴二覆以半匏皆彩畫之上加銅匾以竹爲琴作虵文橫其上長三尺餘頭曲如拱長二寸以條繫腹穿匾及匏本可受二升大絃應太蔟次絃應姑洗有獨絃匏琴以班竹爲之不加飾刻木爲虵首張絃無軫以絃繫頂有四柱如龜茲琵琶絃應太蔟有小匏琴二形如大匏琴長二尺大絃應南呂次應應鍾有橫笛二一長尺餘取其合律去節無仆以蠟實首上加師子頭以牙爲之穴六以應黃鍾商備五音七聲又一管唯加象首律度與荀勗笛譜同又與清商部鍾聲合有兩頭笛二長二尺八寸中隔一節節左右開衝無穴兩端皆分洞體爲

Plate c.

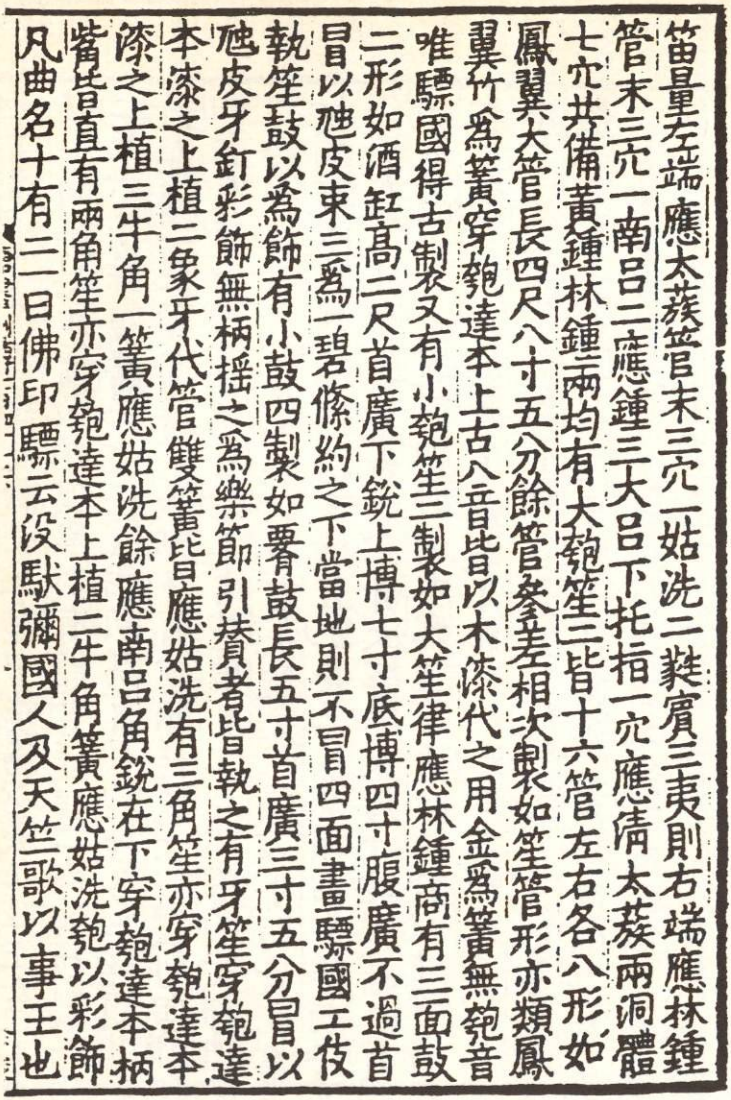

笛量左端應太蔟管末三穴一姑洗二蕤賓三夷則右端應林鍾
管末三穴一南呂二應鍾三大呂下托指一穴應清太蔟兩洞體
七穴共備黃鍾林鍾兩均有大篳篥二皆十六管左右各八形如
鳳翼大管長四尺八寸五分餘管參差相次製如篳管形亦類鳳
翼竹爲簧穿匏達本上古八音皆以木漆代之用金爲簧無匏音
唯驃國得古制製又有小匏笙二製如大笙律應林鍾商有三面鼓
二形如酒缸高二尺首廣下銳上博七寸底博四寸腹廣不過首
冒以虵皮束三爲一碧條約之下當地則不冒四面畫驃國工伎
執笙鼓以爲飾有小鼓四製如磬鼓長五寸首廣三寸五分冒以
虵皮牙釘彩飾無柄搖之爲樂節引賛者皆執之有牙笙穿匏達
本漆之上植三牛角一簧應姑洗餘應南呂角銳在下穿匏達本柄
銜皆直有兩角笙亦穿匏達本上植二牛角簧應姑洗匏以彩飾
凡曲名十有二日佛印驃云没馱彌國人及天竺歌以事王也

Plate d. The account of instruments in the orchestra of Pyū ends with the penultimate column, counting from the righthand margin.

survey of the pitches assigned to the tenor mouth-organs shows that they are directly related to the pitches assigned to other winds (flutes and free-reed mouth-organs), and to the strings. This means that the ensemble was *rational* in the relationship between drone- and melodic instruments, in contrast to Tibetan ritual orchestras (for example), where drone-horns are not necessarily in rational pitch relationship with shawms or thigh-bone trumpets. Indeed, the attention paid by Wei Gao 韋皐 to pitches, as well as to octave-species, suggests that the euphony of the Pyū orchestra was one of its most striking features.

The tonality of the orchestra would seem to have been centred on three principal notes, potential finals, a fourth (or fifth) apart, namely (approximately), $b^{\flat}$, $e^{\flat}$, and $a^{\flat}$. The fact that the two strings of the large stick-zithers, more than three feet in length, were also tuned $a^{\flat}$ and $b^{\flat}$, while the tusk- and horn-mouth-organs were tuned $b^{\flat}$ and $e^{\flat}$, may imply that the role of $b^{\flat}$ was more important than that of $a^{\flat}$ or $e^{\flat}$. With instruments (transverse flutes and mouth-organs) yielding Mixolydian octave-species with $e^{\flat}$ or $a^{\flat}$ as final, it may be then that the $b^{\flat}$ of the bass mouth-organs and large stick-zithers functioned as final to Aeolian series ($b^{\flat}$ *c* $d^{\flat}$ $e^{\flat}$ *f* $g^{\flat}$ $a^{\flat}$), and as dominant to Mixolydian series with $e^{\flat}$ as final ($e^{\flat}$ *f g* $a^{\flat}$ $b^{\flat}$ *c* $d^{\flat}$). These suggestions all presuppose that the bass free-reed instruments, of one or two notes only, exercised rational harmonic functions in relation to the tonality, and indeed to the modality, of the melodic instruments.

Turning to the stringed instruments, the statement that the one-string gourd-zither (stick-zither with applied gourd-resonator) was fretted, with four frets 'as on the Kuchean lute' (see later), might mean that, the pitch of the open string being $a^{\flat}$, the notes obtainable at the four frets were: $b^{\flat}$, $b^{\natural}$, *c*, $d^{\flat}$. Other notes could have been obtained, however, by practising the technique of nodal-stopping while plucking (yielding harmonics). (This procedure is used in playing the Vietnamese monochord harp: *dàn bâu.*[34]) Thus, by damping lightly with the edge of the palm of the plucking hand at two-thirds of the length of the string, the open string ($a^{\flat}$) would yield $e^{\flat}$, and repeating the procedure at two-thirds of each stopped length, extra notes *f* (from $b^{\flat}$), and $g^{\flat}$ (from $b^{\natural}$) could be obtained. With $a^{\flat}$ (damping the open string at the midpoint) completing the set, a Mixolydian octave-species would result. If the first four notes ($b^{\flat}$, $b^{\natural}$, *c*, $d^{\flat}$) were produced as second harmonics (damping at the mid-point of the sounding string-length when plucking) all notes would be in the same octave.

Regarding the large and small gourd-zithers with two strings, no information about fretting is given; but again the tuning of the open strings – $a^{\flat}$, $b^{\flat}$; and $e^{\flat}$, *f* – is rationally related to the pitches and scalings of other instruments.

[34] Nguyèn-xuàn-khóat: 'Le Dàn-bâu,' in *Journal of the International Folk Music Council*, xii, pp. 31–33, 1960. I am indebted to Dr D. R. Widdess for drawing my attention to the description, given by B. Chaitanya Deva in his *Musical Instruments of India* (Calcutta, 1978), of the technique adopted in playing the *tuila* of Orissa – a stick-zither without frets, and to the account of stick-zither technique by Śārṅgadeva in the early thirteenth century *Saṅgītaratnākara.*

If melodic instruments in this ensemble were permitted free inversion of intervals – such as the scores (in tablature) of items in the Tang-Music repertory (Tōgaku) of the Japanese Court show to have been the practice in the twelfth century, and if the occasional omission of a note by one or other instrument were permitted, pieces in a number of diatonic, heptatonic modes could have been played. The emphasis on the absolute-pitch guxian ($b^{\flat}$), to which both elephant-tusk free-reeds and three ox-horn reeds were tuned, suggests, however, a restriction of the modes most commonly used to those with $b^{\flat}$ as final or as dominant. These would be heptatonic Aeolian for instruments with a complete Mixolydian note-set on $a^{\flat}$; heptatonic Dorian, for those with a complete Mixolydian note-set on $e^{\flat}$; and both types could join in Aeolian or Dorian pieces with omission of the sub-final, as appropriate. The presence of two ox-horn free-reeds tuned to $e^{\flat}$ (in the three-horn mouth-organ) suggests, however, that $e^{\flat}$ was also used as final in Mixolydian pieces, on occasion. This would make sense of the Mixolydian octave-species on $e^{\flat}$, specified for certain of the wind-instruments. Again it should be emphasised that the restriction of modal usage is only a valid hypothesis if the 'drone' instruments functioned as suggested.

Turning finally to the three-stringed lute: if the strings were tuned in fourths, $a^{\flat}\ d^{\flat}\ g^{\flat}$, and the three frets specified were spaced so as to yield steps (from open string) of tone, semitone, semitone, in sequence, this would furnish

$a^{\flat}$	$d^{\flat\prime}$	$g^{\flat\prime}$
$b^{\flat}$	$e^{\flat\prime}$	$a^{\flat\prime}$
$b^{\natural}$	$e^{\prime}$	$a^{\prime}$
c	$f^{\prime}$	$g^{\prime}$
$= a^{\flat}\ b^{\flat}\ b^{\natural}\ c^{\prime}$	$d^{\flat\prime}\ e^{\flat\prime}\ e^{\natural\prime}\ f^{\prime}$	$g^{\flat\prime}\ a^{\flat\prime}\ a^{\natural\prime}\ b^{\flat\prime}$

from which Mixolydian on $a^{\flat}$, Aeolian on $b^{\flat}$, and Dorian on $e^{\flat}$, could readily be selected (free inversion of intervals being permitted).

In support of the choice of a sequence of frets disposed so as to yield tone, semitone, semitone, is the fact that the standard sequence on lutes with *four* frets, preserved on the *gaku biwa* 樂琵琶 of Japanese Court-music is: tone, semitone, semitone, semitone; and on the fifth string of the 5-stringed lute *wuxian/gogen* 五絃, a fifth fret appears to have been added, as shown by Wolpert,[35] so that the series runs: tone, semitone, semitone, semitone, tone. If fretted and tuned as suggested, the lute in the Pyū orchestra certainly had other modal potentialities than those mentioned previously; but these could not have been exploited in ensemble because of the limitations of the instruments with a fixed set of pitches. This is also true of the note-set of the double-ended flute (p. 254), the possibilities of which – in regard to modal variety – cannot have been fully realised in the context of this ensemble.

The practice of melody + drone accompaniment is one type of harmonic music commonly exploited by mouth-organs in Laos, North-East Thailand,

[35] R. F. Wolpert: 'A ninth-century score for five-stringed lute', in *Musica Asiatica 3*, pp. 107–35, 1981. See p. 111.

南蠻諸國樂　扶南　天竺　南詔　驃國

扶南天竺二國樂。隋代全用天竺。列於樂部。不用扶南。因煬帝平林邑國。獲扶南工人及其匏琴。樸陋不可用。但以天竺樂轉寫其聲。

南詔樂。貞元十六年正月。南詔異牟尋作奉聖樂舞。因西川節度使韋皐以進。特御麟德殿以閱之。

驃國樂。貞元十八年正月。驃國王來獻。凡有十二曲。以樂工三十五人來朝。樂曲皆演釋氏經論之詞。驃國在雲南西。與天竺國相近。故樂多演釋氏之詞。每爲曲皆齊聲唱。各以兩手十指。齊開齊斂。爲赴節之狀。一低一昂。未嘗不相對。有類中國柘枝舞。驃一作僄。其西別有彌臣國。樂舞亦與驃國同。多習此伎以樂後。勅使袁滋郄士美至南詔。並皆見此樂。

西戎五國樂　高昌　龜茲　疎勒　康國　安國

高昌樂。西魏與高昌通。始有此樂。至隋開皇六年。來獻聖明曲。至太宗朝。討其國。盡得其樂。事見十部伎門。

龜茲樂。自呂光破龜茲。得其聲。呂氏亾。其樂分散。至後魏有中原。復獲之。於時曹婆羅門者。累代相承傳其業。至孫妙達。尤爲無比。至隋有兩國龜茲之號。凡三部。開元中大盛。齊文宣常愛此曲。每彈。常自擊胡

Plate e. The mid-section of the text: 'Music of Pyū', is translated in the second paragraph of p. 262.

and Kampuchea; and as Maceda[36] has shown, it is frequently practised in musics of the Philippine peoples – on bamboo tube-zithers, for example. The practice belongs to a widely distributed archaic group of harmonic procedures. However, a further text relating to this same event – the performance of Pyū musicians and dancers at the Tang Court in 802 – suggests a quite singular role for drones in this ensemble.

As noted by Twitchett and Christie,[37] the account of the Pyū embassy in *Tang Huiyao* 唐會要 gives further information of great musical interest: 'In the first months of 802, the King of Pyū came to offer tribute. In all, there were twelve pieces [of music]. 35 musicians were brought to court. The musical pieces all enacted tales from Buddhist *sūtra* and *śāstra*. Pyū lies to the West of Yunnan, near to India; therefore many performances of Buddhist tales occur in the music. At each enactment of a piece, all sang notes that were all alike. Each of them all alike opened, and all alike closed, the ten fingers of two hands to give shape to their marking of the time: now up, now down, they were never in disagreement. It was something like the Chinese *zhezhi* 柘枝 ('Thorn-tree branch') dance.'[38] (Plate e, main columns 5-7.)

This passage is plainly of the greatest musical interest. Twitchett and Christie translate the phrase: *jie qi sheng chang* 皆齊聲唱 as 'they all chant in an even tone'. What the text is stating is of such importance that I have sought the most literal interpretation, hence my 'all sang notes that were all alike'. The primary meaning of qi is 'equal, uniform, to be equal with, of equal length' (see Bernhard Karlgren: *Grammata serica recensa*, 593 a-e, p. 158, Stockholm, 1957). Using the word 'even', Twitchett and Christie were able to apply the adverb 'evenly' to the second and third occurrences of qi in this same passage, where this same word describes the opening and closing of the fingers. My seeking another word was determined by the consideration that 'chant in an even tone', though it perhaps suggests a monotone chant, is not musically precise. To sing notes that were all alike, however, implies beyond question, a chant on one note, and (since the all-alikeness applies to every aspect) all such notes were of equal duration.

The alternative, that sheng is here to be translated as 'tune' or 'melody' can be excluded, since it would not need to be said that 'all sang tunes that were all alike'. (In any case, I think it unlikely that qi could be used of the likeness of entities as complex as tunes.) From this is appears, then, that the singers sang a monotone, measured chant, and that the chant was one musical aspect of the piece. Given the presence in the instrumental ensemble of instruments that can only have functioned as drones in bass register, it seems possible that the measured chant was supported by the drone instruments and sung at their pitches in the appropriate octave; furthermore, it seems possible

36 José Maceda: 'Drone and melody in Philippine musical instruments', in *Traditional Drama and Music of Southeast Asia*, ed. Mohd. Taib Osman, Kuala Lumpur 1974, pp. 246–273.

37 Twitchett and Christie, op. cit., p. 181.

38 op. cit., p. 177. See *Zhonghua shuju* edn 1955; *jüan* 33, p. 620.

that this monotone chant was accompanied by the remaining ensemble of melodic instruments.

'All alike opening and all alike closing their fingers' is reminiscent of South Asian hand- and finger-gestures as metric markers, defined in the *Saṅgītaratnākara* of Śārṅgadeva (first half of the thirteenth century), where the hand is either closed, as a fist, or open, with fingers extended in the plane of the palm. The qualification 'now up, now down' might well refer to the rotation of the hand, correlated with opening and closing of the fingers in association with these gestures, with the hand rotating alternately between pronation (palm downwards) and supination (palm upwards). Pursuing this comparison, the movements specified in the Chinese account might well be a description of the gestures: āvāpa (fist closed with the palm upwards; hand in supination); praveśa (contraction of the fingers, palm downwards; hand in pronation); niṣkrāma (fingers extended, palm downwards); vikṣepa (fingers extended, palm upwards) (see E. Wiersma-te Nijenhuis: *Dattilam – a compendium of ancient Indian music*, Leiden, 1970, pp. 329, 330). The non-mentioning of claps as a metrical gesture by the Chinese account may be due to these having been replaced by bell-cymbals and iron clappers (p. 246). Given this description of metrical gestures in alternation, it is certain that a fundamentally binary metre is being described in the Tang Huiyao account.

We have then the picture of a body of singers – seemingly *not* included in the count of musicians – who were also, perhaps, the dancers (since one cannot make finger-gestures while playing an instrument). The singers chant a monotone chant in equal notes, in binary metre, and mark the metre with hand-and-finger gestures. The chant is sustained by bass free-reed mouth-organs. The reciting tone could then have been *either* the *final* of pieces in the Aeolian or Dorian modes on $b^{\flat}$, *or* the *dominant* ($e^{\flat}$) of pieces in the Mixolydian mode on $a^{\flat}$.

The concept of chant executed as a pedal-point to a melodic instrumental accompaniment, it may be recalled, was probably not unknown in the medieval West. In the *Alleluia (nativitas)*[39] of Perotin, for example, the syllables of the chant (in the tenor) appear to have been sung to long, sustained notes, each of which serves throughout its duration as a pedal, above which the two upper voices provide an accompaniment in 6/8 time.

Xin Tangshu also makes statements about the nature of the dances and the costume of the musicians. First, regarding the chief formal characteristics of the dance-pieces: 'When beginning to play music, there is an assistant (*zanzhe* 贊者) who first gives instruction in the meaning of the music. According to the nature of their dances, the pieces employ either two, six, four, eight, or ten, dancers. All wear pearl head-dresses. They make obeisance, and mark the end of a division by bowing their heads to the

39 Yvonne Rokseth: *Polyphonies du XIIIe siècles*, Paris 1935, volumes I–IV.

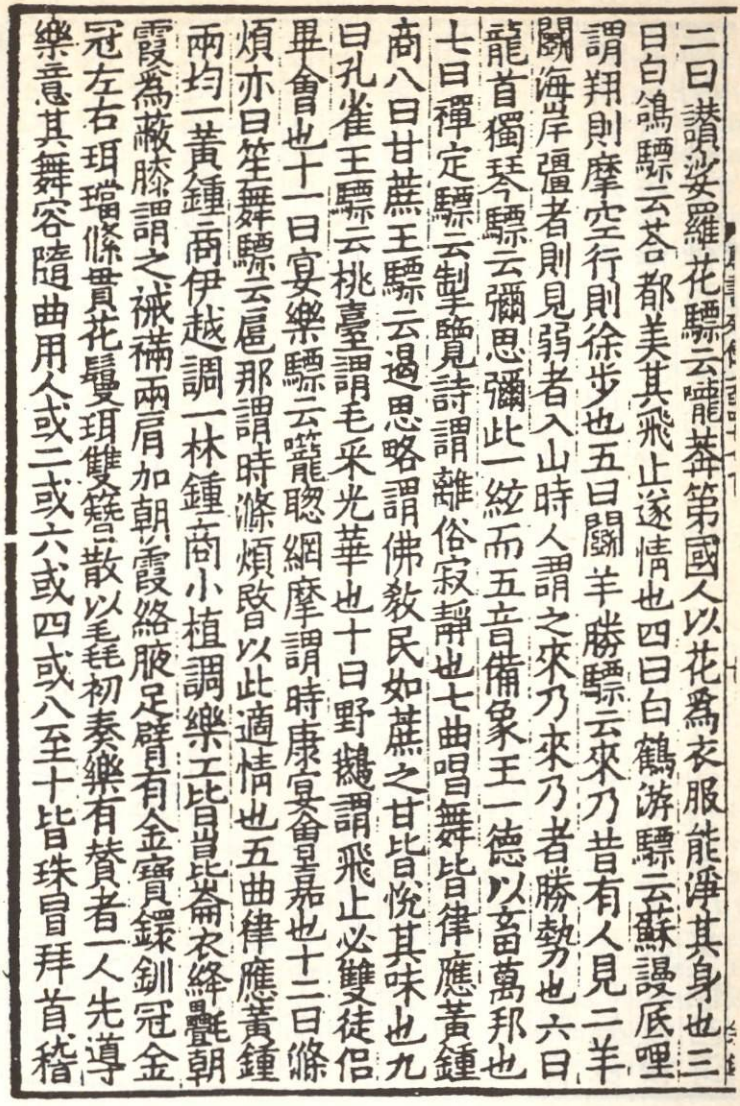
ground. Their music is understood through five-fold interpretation'[40] (see Plates f, g: in Tangshu. j. 22 xia, p. 10b, line 13 – p. 11a, line 1). This preliminary expounding of the meaning of the dance again recalls South Asia and, in particular, the sung-exposition of types of Karnatic dance, for example. Formally, the most striking statement perhaps is that concerning 'division' and 'five-fold' interpretation, for this suggests division of a piece into *tie* 帖 (or *die* 疊) (= section) (commonly ending on the final in the 'Tang-Music' (*Tōgaku/Tangyue* 唐 樂) tradition of Japanese Court-music), each of which may be repeated a number of 'times' (*hen/bian* 遍). The pairing of dancers, suggested by the Xin Tangshu's account, with its specification of even-numbered groups of dancers, would fit the *Jiu Tangshu* 舊 唐 書 account of the zhezhi-dance, in which two dancers, or rows of dancers, respond to each other's movements, as noted by Twitchett and Christie.

In view of the parallel tuning of stick-zithers a fifth apart, and of transverse flute a fifth apart from the small mouth-organs, it is possible that the sonority of the instrumental accompaniment was enhanced by playing in fifth and octave parallels. This would avoid exposing the gaps in the scaling of those instruments which yielded a Mixolydian octave species starting on $e\flat$ – gaps that would appear if the attempt were made to play them (making the necessary inversions) in Mixolydian on $a\flat$ in the appropriate octave, for example.

Twitchett and Christie mention the apparent punctuating function of instruments which is suggested by Burmese inscriptions of the eleventh to thirteenth centuries (the earliest of these are slightly later than the eleventh-century Mon inscriptions); but if the singers were also the dancers, it seems perhaps rather unlikely that dancers would perform solely to twelve, different, monotone chants with orchestral interludes.

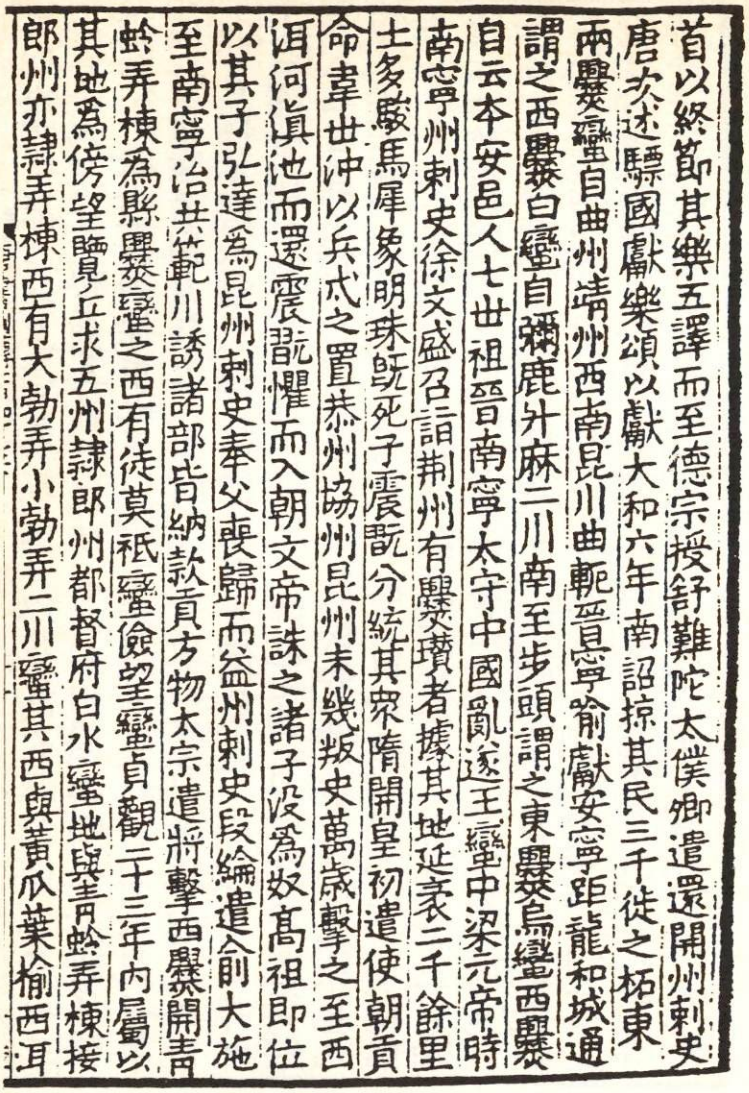
Notwithstanding the important differences between the orchestra of Pyū and those of later Burmese music – notably the absence from the former of gong- and drum-chimes, and of chimes of wooden or metal slats (recorded by the same authors) – there can be no doubt that the music of Pyū shared with Burmese music the characteristics (1) of binary metre (p. 263), and (2) of inseparable linkage with a narrative (and to that extent of being programmatic and, in some degree, impressionistic), and of being heptatonic. These are attributes of other musical traditions of East and South-East Asia. Furthermore, since (as has been suggested), the presence of melodic winds, and strings, of fixed pitch, tuned to octave-species a fifth apart, would find ready explanation if these played the same melody in parallel fifths (p. 267), it is possible that the music of the Pyū afforded the harmonic skeleton that seems to be present in (for example) the 'classical' Burmese repertory of songs

[40] In a recent paper, D. Bradley takes this last sentence to be a cryptic reference to 'a Pyu speech surrogate music accompanying a dance'. (See: 'Speech through music: the Sino-Tibetan gourd reed-organ', in *Bulletin of the School of Oriental and African Studies*, Vol. xlii, Part 3 (1979), pp. 535–540, and in particular, p. 537.) The suggestion is made in the context of his description of the gourd free-reed mouth-organ of the Lahu Sheleh and its use by courting couples in communication: 'speech is encoded by tones' (op. cit., p. 539).



二曰讚娑羅花驃云嚨莽第國人以花爲衣服能淨其身也三曰白鴿驃云苔都美其飛止遂情也四曰白鶴游驃云蘇謾底哩謂翔則摩空行則徐步也五曰鬬羊勝驃云來乃昔有人見二羊鬬海岸彊者則見弱者入山時人謂之來乃來乃者勝勢也六曰龍首獨琴驃云彌思彌此一絃而五音備象王一德以畜萬邦也七曰禪定驃云制孛覽詩謂離俗寂靜也七曲唱舞皆律應黃鍾商八曰甘蔗王驃云過思略謂佛教民如蔗之甘皆悅其味也九曰孔雀王驃云桃臺謂毛采光華也十曰野鵝謂飛止必雙徒侶畢會也十一曰宴樂驃云籠聰網摩謂時康宴會嘉也十二曰條煩亦曰笙舞驃云扈那謂時滌煩啓以此適情也五曲律應黃鍾兩均一黃鍾商伊越調一林鍾商小植調樂工皆紫衲衣絳韈朝霞爲蔽膝謂之裨兩肩加朝霞絡腕足臂有金寶鍊釧冠金冠左右珥瑞條貫花鬘珥雙簪散以毛毬初奏樂有贊者一人先導樂意其舞容隨曲用人或二或六或四或八至十皆珠冒拜首稽

Plate f. 'When beginning to play music, ...' the passage begins in the second column from the left-hand margin, ten lexigraphs from the bottom.



首以終節其樂五譯而至德宗授舒難陀太僕卿遣還開州刺史
唐次述驃國獻樂頌以獻大和六年南詔掠其民三千徙之柘東
兩爨蠻自曲州靖州西南昆川曲軛普窓喻獻安寧距龍和城通
謂之西爨白蠻自彌鹿升麻二川南至步頭謂之東爨烏蠻西爨
自云本安邑人七世祖晉南寧太守中國亂遂王蠻中梁元帝時
南寧州刺史徐文盛召詣荊州有爨瓚者據其地延袤二千餘里
士多駿馬犀象明珠既死子震亂分統其衆隋開皇初遣使朝貢
命韋世沖以兵式之置恭州協州昆州未幾叛史萬歲擊之至西
洱河俱也而還震詭懼而入朝文帝誅之諸子沒爲奴高祖即位
以其子弘達爲昆州刺史奉父喪歸而益州刺史段綸遣會大施
至南寧治共筰川誘諸部皆納款貢方物太宗遣將擊西爨開青
蛉弄棟爲縣爨蠻之西有徒莫祇蠻儉望蠻貞觀二十三年內屬以
其地爲傍望賢丘求五州隸郎州都督府白水蠻地與望苴蛉弄棟接
郎州亦隸弄棟西有大勃弄小勃弄二川蠻其西與黃瓜葉榆西洱

Plate g. See the first column from the right for the end of the translation, on p. 264.

with harp accompaniment, as it survives today.

As recognised by Williamson,[41] the association of the melody-note on which a musical line cadences with its fifth above, in the characteristic cadential formula for harp known as *atàw*, imparts a strong harmonic feeling to the ensemble of voice and harp, such that this music may properly be regarded as a genus of two-part music. The use of the cadential 'pitch-levels', as Williamson has shown, is systematic; and there is a sense in which the 'chords' (of root and fifth above) can be compared with dominant, subdominant, and tonic, triads, in classical Western harmony. If the orchestra of Pyū played melodies in parallel fifths above tonic or dominant pedals, a basis would have existed for the development of characteristically Burmese manifestations of 'quintile' harmony.

Williamson[42] has further drawn attention to the relationship between the formal organisation of Burmese 'classical' songs and that of archaic Chinese songs of the first millenium, the texts of which are preserved in *'The Book of Songs' Shi Jing* 詩經. In these, as in Burmese song-texts, a binary principle of organisation may appear at several levels of organisation.

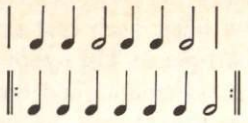
Few though the musical clues are in the account of the Pyū orchestra, and of the performance of the associated singers and dancers, they bear witness to connections with aspects of later Burmese music, and with archaic traits of musics of East Asia in general.

A remarkable feature of the various Chinese accounts of the performances of the musicians and dancers from Pyū is the contrast between, on the one hand, the apparent evidence of their having made a sufficient impression (if only as a cultural rarity and curiosity) on Court officials for an illustrated account of their instruments to be prepared and offered to the throne, and on the other hand the mildly reproving, or sharply censorious, comments on this music by the poets Bo Juyi and Yuan Zhen in their parallel poems: 'Music of the country of Piao [Pyū]'. At many points, the two poems – both of some length: 33 lines in the case of that by Bo Juyi; 26 lines in the case of that by Yuan Zhen – are similar. Both begin with comments on the music and on the movements and costumes of the dancers, both move from these aspects to reflections on the political effects of this foreign music, both end on a note of regret that the court should have been exposed to this music. From the start, however, Yuan Zhen expresses himself in pejorative terms, while Bo Juyi adopts progressively a tone more in sorrow than in anger.

Bo Juyi's poem (first translated by Arthur Waley in the *History of Burma* by G. E. Harvey, 1967, pp. 14, 15) employs a metrical device of certain other of his poems that are placed in the 'New Song-Treasury Lyrics' *Xin Yuefu-ci* 新樂府辭 of 郭茂倩. The first line is of six lexigraphs only, while all

41 Muriel C. Williamson: 'Aspects of traditional style maintained in Burma's first 13 Kyò songs,' in *Selected Reports in Ethnomusicology, II, 2*, pp. 117–63, Los Angeles 1975. See p. 119 et seq.

42 Muriel C. Williamson: 'The basic tune of a late eighteenth-century Burmese classical song,' in *Musica Asiatica 2*, pp. 156–195, Oxford University Press 1979. See p. 167.

other lines have seven lexigraphs. This means that the rhythmic structure of entire song was probably:

Only the first ten lines need be cited here:

'Music of the country of Piao! Music of the country of Piao!
It issued forth from the South-Western corner of the Great Sea.
The son[43] of Yong Qiang, Shunanto [Sunanda]
Having come to offer Southern melodies
  raised both hands in salutation on New Year's Day.
Dezong took his seat in full state in the Imperial Purple Hall.
The Imperial Yellow Silk [earflaps of his cap] were not let down to block his ears;
  he listened on your account.
At the first blast on the jade[44] conch, the mallet-dressed hair[45] is carried erect;
At the first[46] stroke on the bronze drum, the tattooed[47] bodies leap.
Pearl tassels gleam as they rotate; the constellations shake.
[At sight of] flowery hair-adornments and shaking head-pads, dragon or snake stirs!'

Bo Juyi now introduces a philosophic farmer whose observations culminate in the following aphorisms and final reflections on the music of Pyū:

'If the people attain to peace, the ruler is happy.
The people of the Zhenyuan period [785–805] are not yet at peace;
And although he hears the music of Piao, the ruler has no pleasure.
[Hearken, Lord!] If the people of Zhenyuan were not sick,
[Even though] the music of Piao had not come, the ruler would have been held to be a Sage.
The music of Piao! The music of Piao is mere noise!

43 In fact, the brother.

44 Waley translates 'jade' as 'jewelled'; but 'jade' is a not unsuitable enhancing epithet for the substance of a shell and acts as a suitable parallel to 'bronze'.

45 This is the typical traditional Burmese female hairstyle of today.

46 The text in the *Yuefu-shiji* 樂府詩集 has 'thousand' *qian* 千 instead of *yi* 一. 千 occurs in the 汪立各本 edition of Bo Juyi's poems but the 全唐詩本 has 一. See 白氏文集 edited by 平岡武夫 and 今井清 (京都大學人文科學研究所)

47 Waley has 'painted'; but tattooing was probably general among the Pyū at that time, as it is in rural Thailand today.

Different from hearing this it is [to hear the words of] grasses and reeds (= of the common people).'

Yuan Zhen's poem from the start emphasises singularities of all kinds:

'The musical instruments of Pyū with their heads resembling animals with long necks [for example, camels, ostriches].
Their musical notes are not consonant with the twelve harmonious ones [that is, with the *lǚlù* 呂律].
Hurrying they dance, leaping with feet raised, with joints stiff.
With a myriad words, in utter confusion, with names transformed.
A thousand play, ten thousand sing, all 'boom-boom' (= *yanyan* 咽 咽)
To the left whirling, to the right rotating, vacantly reeling [= *chacha* 傞 傞];
Bowing to the ground, calling upon Heaven; at the end, nothing achieved.
The piece completed, the mode changes, and what then?
Dezong's chief ambition was to treat distant peoples gently.
[Even so] mouth-organ and [temple]bell are not suited to be joined with physical beauty'.
He ends:

'Right and wrong, the put-down and the set-up, have existed since ancient times.
O Pyū! O Pyū! Who can blame you?'

The more valuable of the poems is Yuan Zhen's. From the standpoint of yielding positive information about instruments, music, dances and chants, his opening reference to instruments seems to match the several references (in Xin Tangshu's account) to animal heads, or animals, decorating harps, zithers, gourd-zithers, lutes, and flutes. Since, in a number of instances, an animal head marks the termination of a long, neck-like part of an instrument, or of an entire elongated instrument, the instruments may indeed be thought to look like 'animals with long necks'.

His statement about pitches not consonant with the dodecatonic octave is suggestive. The scaling of Burmese instruments today is not strictly rational, as is evident to the ear and as is shown by frequency-measurements on harps freshly tuned in the *hnyìn-lòn* tuning.[48]

The comment about the mode changing at the end of a piece and (presumably) when a second piece begins, may imply a progression through the modes, such as occurs, with descending finals, in the performance, in Burma today, of a set of classical songs with harp-accompaniment.

The reference to 'names transformed' – literally 'the lexigraphs of names transformed' – may refer to the strangeness of Buddhist names in their Piao forms, as compared with their standard phonetic transcriptions in terms of

48 R. C. Williamson: 'Measurement of traditional tuning frequencies of a Burmese harp', in *Selected Reports*, Volume 1, No. 2, Institute of Ethnomusicology, pp. 73–6, 1968. See Figure 1, p. 76.

approximately equivalent Chinese monosyllabic words, familiar to Chinese ears.

Yuan Zhen's comment on the unsuitability of mouth-organ and bell may have been made because these instruments were associated with the orchestra used in Confucian and clan rites.

The writing of an account of the orchestra for inclusion in the state annals, to which both Bo Juyi and Yuan Zhen refer, and which, according to Bo Juyi, was requested by Chinese officials, seems to have been prompted by Sunanda's expression of his brother's wish to become tributary to Tang, rather than by any favourable impression made by the musicians and dancers of Pyū. It is interesting that Yuan Zhen, in his: 'To the left whirling, to the right rotating...' uses words that might have been applied to 'The Sogdian Whirl', yet another foreign dance, castigated both by himself and by Bo Juyi, but performed at the Imperial Court during the Tianbao period and imitated, presumably, by dancers of the Court training-school in the *Tuanluan-xuan* 團鸞旋 'The whirl-around'.

Yet such was the ambivalence of attitude towards foreign, or foreign-coloured music and dance that, by the early ninth century, Yuan Zhen could lament the forgetting of ballets from the beginning of the Tang that were at least tinged with foreign – namely, Kuchean – influence, such as 'The singing of Spring warblers'.